

I. AMENDMENTS TO THE CLAIMS:

Please amend claims 7, 8, 10 and 17 as follows.

The following claims will replace all prior versions of claims in the present application.

LISTING OF CLAIMS:

1. (Previously Presented) An automatic zero point correction device, comprising:

a pressure sensor operable to measure fluid pressure, wherein output voltage from the pressure sensor is outputted to an outside and the sensor output voltage is inputted to a time-varying zero point drift correction means of the pressure sensor;

a sensor output judgment means of the time-varying zero point drift correction means, wherein the sensor output judgment means operates to make a judgment to determine whether the sensor output voltage is larger than a set value; and

operating condition judgment means of the time-varying zero point drift correction means, wherein the operating condition judgment means judges operating conditions of the pressure sensor, wherein the time-varying zero point drift correction means operates to cancel time-varying zero point drift of the pressure sensor when the sensor output judgment means determines that the sensor output voltage is larger than the set value and the operating condition judgment means determines that the operating conditions of the pressure sensor are within previously set operating conditions.

2. (Previously Presented) An automatic zero point correction device as claimed in Claim 1, wherein the pressure sensor is a semiconductor pressure sensitive element, the output voltage from the pressure sensor is outputted to the outside through an amplifier and is inputted to the time-varying zero point drift correction means of the pressure sensor through

an A/D converter, and output for zero point correction is inputted to an offset terminal of the amplifier from the time-varying zero point drift correction means through a D/A converter when the sensor output voltage is larger than the set value and the pressure sensor is operating under the set operating conditions, wherein the output for zero correction is identical to the sensor output voltage with reversed polarity.

3. (Previously Presented) An automatic zero point correction device, comprising:

a pressure control device equipped with a control valve for pressure control and a pressure sensor operable to measure fluid pressure, wherein output voltage from the pressure sensor is outputted to an outside and the sensor output voltage is inputted to a time-varying zero point drift correction means of the pressure sensor;

a sensor output judgment means of the time-varying zero point drift correction means, wherein the sensor output judgment means operates to make a judgment to determine whether the sensor output voltage is larger than a set value; and

operating condition judgment means of the time-varying zero point drift correction means, wherein the operating condition judgment means judges operating conditions of the pressure sensor, wherein the time-varying zero point drift correction means operates to cancel time-varying zero point drift of the pressure sensor when the sensor output judgment means determines that the sensor output voltage is larger than the set value and the operating condition judgment means determines that the operating conditions of the pressure sensor are within previously set operating conditions.

4. (Previously Presented) An automatic zero point correction device as claimed in Claim 3, wherein the pressure sensor is a semiconductor pressure sensitive element, the

output voltage from the pressure sensor is outputted to the outside through an amplifier and is inputted to the time-varying zero point drift correction means of the pressure sensor through an A/D converter, and output for zero point correction is inputted to an offset terminal of the amplifier from the time-varying zero point drift correction means through a D/A converter when the sensor output voltage is larger than the set value and the pressure sensor is operating under the set operating conditions, wherein the output for zero point correction is identical to the sensor output voltage with reversed polarity,.

5. (Previously Presented) An automatic zero point correction device, comprising:

a pressure type flow rate control device comprising an orifice for flow rate control, a control valve mounted on the upstream side pipe from the orifice, and an upstream side pressure sensor installed between the orifice and the control valve to detect upstream side pressure P1 to control flow rate of fluid passing through the orifice by the upstream side pressure P1, wherein output voltage from the pressure sensor is outputted to a flow rate computing means;

a time-varying zero point drift correction means of the pressure sensor, wherein the sensor output voltage is inputted to the time-varying zero point drift correction means;

a sensor output judgment means of the time-varying zero point drift correction means, wherein the sensor output judgment means operates to make a judgment to determine whether the sensor output voltage is larger than a set value; and

operating condition judgment means of the time-varying zero point drift correction means, wherein the operating condition judgment means judges operating conditions of the pressure sensor, wherein the time-varying zero point drift correction means operates to cancel time-varying zero point drift of the pressure sensor when the sensor output judgment means

determines that the sensor output voltage is larger than the set value and the operating condition judgment means determines that operating conditions of the pressure sensor are within previously set operating conditions.

6. (Previously Presented) An automatic zero point correction device as claimed in Claim 5, wherein the pressure sensor is a semiconductor pressure sensitive element, the output voltage from the pressure sensor is outputted to the outside through an amplifier and inputted to the time-varying zero point drift correction means of the pressure sensor through an A/D converter, and output for zero point correction is inputted to an offset terminal of the amplifier from the time-varying zero point drift correction means through a D/A converter when the sensor output voltage is larger than the set value and the pressure sensor is operating under the set operating conditions, wherein the output for zero correction is identical to the sensor output voltage with reversed polarity.

7. (Currently Amended) An automatic zero point correction device, comprising:
a pressure type flow rate control device comprising an orifice for flow rate control, a control valve mounted on the upstream side pipe from the orifice, an upstream side pressure sensor installed between the orifice and the control valve to detect upstream side pressure P1, and a downstream side pressure sensor mounted on the downstream side pipe to detect downstream side pressure P2 to control the flow rate of fluid passing through the orifice by both upstream side pressure P1 and downstream side pressure P2, wherein the output voltage from the upstream side pressure sensor is outputted to a flow rate computing means;

a time-varying zero point drift correction means of the upstream side pressure sensor, wherein the sensor output voltage from the upstream side pressure sensor is inputted to the time-varying zero point drift correction means;

a sensor output judgment means of the time-varying zero point drift correction means, wherein the sensor output judgment means operates to make a judgment to determine whether the sensor output voltage from the upstream side pressure sensor is larger than a set value; and

operating condition judgment means of the time-varying zero point drift correction means, wherein the operating condition judgment means judges operating conditions of the upstream side pressure sensor, wherein the time-varying zero point drift correction means operates to cancel time-varying zero point drift of the upstream side pressure sensor when the sensor output judgment means determines that the sensor output voltage of the upstream side pressure sensor is larger than the set value and the operating condition judgment means determines that operating conditions of the upstream side pressure sensor are within previously set operating conditions.

8. (Currently Amended) An automatic zero point correction device as claimed in Claim 7, wherein the upstream side pressure sensor is a semiconductor pressure sensitive element, the output voltage from the upstream side pressure sensor is outputted to the outside through an amplifier and is inputted to the time-varying zero point drift correction means of the upstream side pressure sensor through an A/D converter, and output for zero point correction is inputted to an offset terminal of the amplifier from the time-varying zero point drift correction means through a D/A converter when the sensor output voltage of the upstream side pressure sensor is larger than the set value and the upstream side pressure sensor is operating under the set operating conditions, wherein the output for zero correction is identical to the sensor output voltage of the upstream side pressure sensor with reversed polarity.

9. (Previously Presented) An automatic zero point correction device as claimed in Claim 3, wherein the set value used as a reference at the sensor output judgment means of the time-varying zero point drift correction means is employed as the sensor output voltage equivalent to less than control accuracy of the full scale pressure to be detected by the pressure sensor.

10. (Currently Amended) An automatic zero point correction device as claimed in Claim 3, wherein the set operating conditions used as a reference at the operating condition judgment means of the time-varying zero point drift correction means comprise three conditions including

- i. whether or not a signal for forced opening to the control valve exists;
- ii. whether or not a signal for forced closing to the control valve exists; and
- iii. the set signal for the flow rate is zero.

11. (Previously Presented) An automatic zero point correction device as claimed in Claim 5, wherein the set value used as a reference at the sensor output judgment means of the time-varying zero point drift correction means is employed as the sensor output voltage equivalent to less than control accuracy of the full scale pressure to be detected by the pressure sensor.

12. (Previously Presented) An automatic zero point correction device as claimed in Claim 5, wherein the set operating conditions used as a reference at the operating condition judgment means of the pressure sensor comprise three conditions including

- i. whether or not a signal to forced opening to the control valve exists;
- ii. whether or not a signal to forced closing to the control valve exists; and

- iii. the set value of the flow rate is zero.

13. (Previously Presented) An automatic zero point correction device as claimed in Claim 4, wherein the D/A converter, through which voltage for the zero point correction is outputted to the offset terminal of the amplifier from the time-varying zero point correction means, is shared with a temperature drift correction means of the pressure sensor mounted on a flow rate computing means of the pressure type flow rate control device.

14. (Previously Presented) An automatic zero point correction device as claimed in Claim 6, wherein the D/A converter, through which voltage for the zero point correction is outputted to the offset terminal of the amplifier from the time-varying zero point drift correction means, is shared with a temperature drift correction means of the pressure sensor mounted on a flow rate computing means of the pressure type flow rate control device.

15. (Previously Presented) An automatic zero point correction device as claimed in Claim 4, wherein the set value used as a reference at the sensor output judgment means of the time-varying zero point drift correction means is employed as the sensor output voltage equivalent to less than control accuracy of the full scale pressure to be detected by the pressure sensor.

16. (Previously Presented) An automatic zero point correction device as claimed in Claim 4, wherein the set operating conditions used as a reference at the operating condition judgment means of the time-varying zero point drift correction means comprise three conditions including

- i. whether or not a signal for forced opening to the control valve exists;

- ii. whether or not a signal for forced closing to the control valve exists; and
- iii. the set signal for the flow rate is zero.

17. (Currently Amended) An automatic zero point correction device as claimed in Claim 8, ~~or~~ wherein the D/A converter, through which voltage for the zero point correction is outputted to the offset terminal of the amplifier from the time-varying zero point drift correction means, is shared with a temperature drift correction means of the pressure sensor mounted on a flow rate computing means of the pressure type flow rate control device.